

In the Drawings

Enclosed are 5 sheets of Formal Drawings (FIGS. 1-5). Applicant respectfully requests that the Examiner and Draftsman review and approve these Formal Drawings.

REMARKS

This Amendment is submitted in reply to the First Office Action dated November 18, 2005. Applicant respectfully requests reconsideration and further examination of the patent application under 37 C.F.R. § 1.111.

Summary of the Examiner's Objections and Rejections

Claims 1-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Carter (US 5,130,105) in view of Lepre (US 6,056,920).

Summary of Amendment

Applicant has cancelled Claims 4 and 12 (without prejudice), amended Claims 1-2, 8, 10-11 and 15 and added Claims 18-20 to more particularly define the present invention.

In addition, Applicant has submitted 5 sheets of Formal Drawings (FIGS. 1-5). Applicant respectfully requests that the Examiner and Draftsman review and approve these Formal Drawings.

Remarks regarding § 103(a) rejections

Applicant respectfully submits that amended independent Claims 1 and 10 and new independent Claim 18 are patentable over Carter and/or Lepre. The claimed invention as recited in amended independent Claims 1 and 10 and new independent Claim 18 follows:

1. A multiwell plate, comprising:
a frame including a plurality of wells formed therein, each well including:
a first well having a relatively large volume;
a second well having a relatively small volume positioned such that the second well is suspended above at least some portion of the first well; and
said second well has a hole therethrough at a lower most point whereby said hole is sized such that liquid is prevented from passing through due to surface tension (emphasis on main distinguishing limitations*).

10. A protein crystallography plate, comprising:
a frame including a plurality of wells formed therein, each well including:
a first well capable of receiving a reagent solution;
a second well having a substantially concaved form capable of receiving a protein solution and a reagent solution;
said second well located over at least a portion of said first well;
said second well has a hole therethrough at a lower most point whereby said hole is sized such that the protein solution and the reagent solution are prevented from passing through due to surface tension;
wherein the reagent solution in said first well has a higher concentration than the reagent solution within said second well; and

wherein the protein solution and the reagent solution within said second well interact with the reagent solution within said first well via a vapor diffusion process which enables the formation of protein crystals within said second well (emphasis on main distinguishing limitations*).

18. A method for using a microplate to form protein crystals, said method comprising the steps of:

prepping the microplate which includes a frame having a plurality of wells formed therein, each well including:

a first well having a relatively large volume;

a second well having a relatively small volume positioned such that the second well is suspended above at least some portion of the first well; and

said second well has a hole therethrough at a lower most point whereby said hole is sized such that liquid is prevented from passing through due to surface tension, said step of prepping further includes:

depositing into the first well a reagent solution; and

depositing into the second well a protein reagent and a reagent solution; and

sealing an opening of each well to enable the protein solution and the reagent solution within said second well to interact with the reagent solution within said first well via a vapor diffusion process which enables the formation of protein crystals within said second well (emphasis on main distinguishing limitations*).

* The amended independent Claims 1 and 10 have been amended to respectively include the limitations of dependent Claims 4 and 12 (now cancelled). And, the new independent Claim 18 contains the same limitations as recited in dependent Claims 4 and 12 (now cancelled).

Applicant respectfully submits that the teachings of Carter and/or Lepre differ significantly from the present invention as recited in the pending independent Claims 1, 10 and 18. The pending independent Claims 1, 10 and 18 each recite a multiwell plate which has a plurality of wells and wherein each well includes a first well and a second well and wherein the second well is suspended (or located) above at least some portion of the first well and wherein the second well has a hole therethrough at a lower most point whereby the hole is sized such that liquid is prevented from passing through due to surface tension (e.g., see FIGURES 4 and 5). Carter does not disclose a multiwell plate which has a second well with a hole therethrough let alone a second well with a hole therethrough at a lower most point which is sized such that liquid is prevented from passing through due to surface tension as claimed in the present invention. Instead, Carter discloses a protein crystal growth tray assembly 10 which includes a tray 12 that has a plurality of individual crystal growth chambers 20. Each chamber 20 has a movable pedestal 32 with a protein crystal growth compartment 56 (see FIGS. 1 and 2). As can be seen, Carter's protein crystal growth compartment 56 does not have a hole therethrough and it does not have a hole therethrough at a lower most point whereby the hole is sized such that liquid is prevented from passing through due to surface tension as claimed in the present invention. Lepre does not cure these defects. Because, Lepre discloses a chamber in which there is placed a plate which has a depression that holds a protein solution (see FIG. 1B). As can be seen, Lepre's plate does not have a hole therethrough

and it does not have a hole therethrough at a lower most point whereby the hole is sized such that liquid is prevented from passing through due to surface tension as claimed in the present invention.

In rejecting the dependent Claims 2-9 and 11-17 (including now cancelled dependent Claims 4 and 12), the Examiner stated the following:

"The Carter et al and Lepre references differ from the instant claims in the well shape and handling system. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable well shapes and handling system in the combined references in order to increase control over the reaction and increase the control of the movements of the multi-well plates".

The Examiner's statement does not appear to take into account the specific structural limitations originally recited in cancelled dependent Claims 4 and 12 but now recited in pending independent Claims 1, 10 and 18). Instead, the Examiner's statement appears to discuss the "well shapes" and "handling system" and it does not appear to discuss why it would be obvious to one of ordinary skill in the art to have "a second well which has a hole therethrough at a lower most point whereby the hole is sized such that liquid is prevented from passing through due to surface tension" as recited in the pending independent Claims 1, 10 and 18. Applicant respectfully submits that Carter and/or Lepre do not disclose a second well which has a hole therethrough and as such there is no motivation to modify Carter and/or Lepre so they read on the pending independent Claims 1, 10 and 18. Accordingly, Applicant respectfully submits that the aforementioned substantial differences between Carter and/or Lepre and the pending independent Claims 1, 10 and 18 are indicative of the patentability of the present invention.

Referring now to the new independent Claim 20, Applicant respectfully submits that the new independent Claim 20 is patentable over Carter and/or Lepre. The claimed invention as recited in the new independent Claim 20 follows:

20. A multiwell plate, comprising:
a frame including a plurality of wells formed therein, each well including:
a first well having a relatively large volume;
a second well having a relatively small volume positioned such that the second well is located above at least some portion of the first well; and
said second well has a hole therethrough (emphasis on main distinguishing limitations).

Applicant respectfully submits that the teachings of Carter and/or Lepre differ significantly from the present invention as recited in the new independent Claim 20. The new independent Claim 20 recites a multiwell plate which has a plurality of wells and where each well includes a first well having a relatively

large volume and a second well having a relatively small volume wherein the second well is suspended (or located) above at least some portion of the first well and wherein the second well has a hole therethrough (e.g., see FIGURES 4 and 5). Carter does not disclose a multiwell plate which has a second well with a hole therethrough as claimed in the present invention. Instead, Carter discloses a protein crystal growth tray assembly 10 which includes a tray 12 that has a plurality of individual crystal growth chambers 20. Each chamber 20 has a movable pedestal 32 with a protein crystal growth compartment 56 (see FIGS. 1 and 2). As can be seen, Carter's protein crystal growth compartment 56 does not have a hole therethrough as claimed in the present invention. Lepre does not cure this defect. Because, Lepre discloses a chamber in which there is placed a plate which has a depression that holds a protein solution (see FIG. 1B). As can be seen, Lepre's plate does not have a hole therethrough as claimed in the present invention. Accordingly, Applicant respectfully submits that the aforementioned substantial difference between Carter and/or Lepre and the new independent Claim 20 is indicative of the patentability of the present invention.

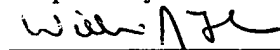
Conclusion/ Discussion about Dependent Claims

Applicant respectfully submits that all of the stated grounds of the rejections have been properly traversed, accommodated, or rendered moot. In addition, Applicant respectfully submits that Carter and/or Lepre fail to disclose the subject matter recited in dependent Claims 2, 8, 11, 17 and 19. In particular, Carter and/or Lepre fail to disclose or suggest the following claimed subject matter:

- An access port that allows fluid communication between the first well and an external environment--Dependent Claims 2, 11 and 19 (see FIGURES 4 and 5).
- A multiwell plate made from cyclo-olefin--Dependent Claims 8 and 17.

Enclosed is a USPTO Credit Card Payment Form filled out for \$ 200.00 to cover the fee for the additional independent Claim 20. If this is incorrect, the Commissioner is authorized to charge any fees which may be required for this paper to Deposit Account No. 50-1481.

Respectfully submitted,



William J. Tucker
Reg. No. 41,356
(903) 489-2198

Corning Incorporated
Attn: Thomas R. Beall, Esq.
SP-TI-03-1
Corning, NY 14831